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ETHYLENE DIBROMIDE SPRAYS FOR CONTROLLING BARK BEETLES IN CALIFORNIA

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Ethylene dibromide has been found effective for controlling bark beetles in California. Originally perfected as a control measure for the Black Hills beetle in Colorado,1/ penetrating oil solutions containing ethylene dibromide have been found highly effective against other species with similar habits. The principal advantage of penetrating oil sprays is that they can be used instead of burning in areas of high fire hazard. Although several mixtures are effective when properly applied, the most satisfactory mixture is ethylene dibromide in diesel oil. This insecticide is recommended to control the western pine beetle, mountain pine beetle, Jeffrey pine beetle, California flatheaded borer, and, occasionally, pine engravers in any of the various host trees in which broods of these beetles occur.

Spray Equipment

The type of equipment needed to apply ethylene dibromide spray depends upon the size of the control job. When only a few trees are to be treated, ordinary garden sprinkling cans with showerhead-type nozzles are satisfactory. When large concentrations of trees are to be treated, it is sometimes advantageous to use power sprayers, such as a Bean slip-on unit or Pacific Marine slip-on unit. Best results are obtained with power equipment capable of maintaining pressure at the nozzle of 10 to 15 pounds per square inch. This avoids creating a mist, which will usually drift away, or causing the spray to bounce off at higher pressures. Spray nozzles on power units should be of a type that allow for large volume at low pressure. A showerhead can be adapted for this purpose.

Treating Procedure

The treatment includes three steps:

1. Prepare the spray.--Mix the ethylene dibromide and diesel oil in a suitable container at the rate of one pint of 85 percent concentrate to 5 gallons of diesel. Pour the concentrate into the container first, then add the oil. Fifty-gallon drums are handy mixing tanks and when equipped with spigots are easy to fill spray cans from.

1/ C. L. Massey, R. D. Chisholm, and N. D. Wygant. Ethylene dibromide for control of Black Hills beetle. Jour. Econ. Ent. 45(5): 861-862, 1952.

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2. Prepare the tree.--Fell and limb the tree, and buck the infested section of the trunk into lengths that can be rolled.

3. Apply the spray.--Thoroughly drench the top portion of each log until the insecticide puddles in the bark crevices. Allow the spray to soak into the bark, then roll the log so that an untreated area is on top and repeat the process. Continue treating and rolling until all of the outer surface has been covered. This usually requires three to four turns of the log. Special care should be exercised to avoid missing any areas, especially along the sides of the log as it is rolled. Treating should not be attempted when the bark is wet.

Rate of Application

The amount of spray required to treat an infested tree properly varies. Ordinarily one application is enough. Large trees, however, require greater volumes than do small ones. As a rule of thumb, the following may be used as a guide in determining quantities needed for ponderosa pine:

Diameter breast high, inches	Gallons of spray
12	6-8
18	8-10
24	15
30	25

When treating other tree species with thinner bark, less spray will be required; thicker barked species may require more.

Sources of Supply

Ethylene dibromide is sold under several trade names. Two commercial products which contain 85 percent concentrations are Dowfume W-85, manufactured by the Dow Chemical Company, and Bromofume-85, produced by Eston Chemicals Division. Both are obtainable through insecticide distributing houses. Some California sources are:

California Spray Chemical Corp., Richmond, California

Eston Chemicals Division, American Potash & Chemical Corp.,
3100 E. 26th Street, Los Angeles 23, California

Neil A. Maclean, 470 Eighth Street, San Francisco 3, California

The Dow Chemical Co., 350 Sansome Street, San Francisco 4, California

The cost of ethylene dibromide sprays, when mixed with diesel oil at the rate described above, is about 30 cents per gallon at current prices.

In order that the information in our publications may be more intelligible it is sometimes necessary to use trade names of products or equipment rather than complicated descriptive or chemical identifications. In so doing it is unavoidable in some cases that similar products which are on the market under other trade names may not be cited. No endorsement of named products is intended nor is criticism implied of similar products which are not mentioned.